|      | Index of Claims |          |               |            |             |          |          |            |           |           |                            |           |                | A               | Application No. |         |           |            |           |          |            |                        |          | Applicant(s)      |           |              |                 |           |  |  |
|------|-----------------|----------|---------------|------------|-------------|----------|----------|------------|-----------|-----------|----------------------------|-----------|----------------|-----------------|-----------------|---------|-----------|------------|-----------|----------|------------|------------------------|----------|-------------------|-----------|--------------|-----------------|-----------|--|--|
|      |                 |          |               |            |             |          |          |            |           |           |                            |           | 10/615,168     |                 |                 |         |           |            |           |          |            | LIU ET AL.             |          |                   |           |              |                 |           |  |  |
|      |                 |          |               |            |             |          |          |            |           |           |                            |           | Examiner       |                 |                 |         |           |            |           |          |            | Art Unit               |          |                   |           |              |                 |           |  |  |
|      |                 |          |               |            |             |          |          |            |           |           |                            |           |                |                 |                 |         |           |            |           |          |            | 3632                   |          |                   |           |              |                 |           |  |  |
|      |                 |          |               |            |             |          |          |            |           |           |                            |           |                | S               | Steven M Marsh  |         |           |            |           |          |            |                        |          | 32                |           |              |                 |           |  |  |
|      |                 |          | П             |            |             |          | 1        | ſ          | 1         | /T        | h                          | ah au     |                | <u></u>         | $\neg$          | Г       | T         |            |           |          | 1          | П                      |          |                   |           |              | ٦               |           |  |  |
|      |                 |          | √             | / Rejected |             |          |          |            | -  ''     |           | hrough numers<br>Cancelled |           |                | aı)             | '               |         | 1         | Non        | -Elec     | Elected  |            | A                      | Appeal   |                   |           | 1            |                 |           |  |  |
|      |                 |          |               |            |             |          |          | ŀ          | $\dashv$  |           |                            |           |                |                 |                 |         | $\dagger$ |            |           |          |            | H                      |          |                   | ┨         |              |                 |           |  |  |
|      | =               |          |               |            |             | Allowed  |          |            | ÷         | ·  R      |                            | estricted |                |                 | '               |         | '         | Interferen |           | nce      |            | 0                      | Objected |                   |           |              |                 |           |  |  |
| _    |                 |          |               |            | <del></del> |          |          |            |           |           |                            |           |                |                 |                 |         |           |            |           |          |            |                        |          |                   |           |              |                 |           |  |  |
| _    | Claim           |          |               | S Date     |             |          |          |            | ·         | $\dashv$  | Claim                      |           |                |                 |                 | ate     | _         |            |           | Cla      | aim        | Н                      | Date     |                   |           |              | $\overline{}$   | -         |  |  |
|      | Final           | jinal    | 10/10/15      |            |             |          |          |            |           |           | Final                      | Original  |                |                 |                 |         |           | '          |           | Finat    | Original   |                        |          |                   |           |              |                 |           |  |  |
|      | ιĒ              | Original | 3             |            |             |          |          |            |           |           | 급                          |           |                |                 |                 |         | ŀ         |            |           | iĒ       | Orig       |                        |          |                   |           |              |                 |           |  |  |
| -    |                 | 1        | 4             | +          | +           | +        | T        | -          |           | _         |                            | 51        | +              | H               | $\dashv$        | +       | +         | +          | H         |          | 101        | H                      | +        | $\vdash$          | $\dashv$  | $\dashv$     | ++              | -         |  |  |
|      |                 | 2        | į             | 4          |             | Ţ        | $\Box$   | $\Box$     | $\Box$    |           |                            | 52        |                | П               | 7               | 1       |           | $\perp$    |           |          | 102        |                        |          | $\square$         |           | $\perp$      | $\blacksquare$  |           |  |  |
| -    |                 | 3        | Н             | _          | +           | ╁        | $\vdash$ |            | $\dashv$  | $\dashv$  |                            | 53<br>54  | +              | $\vdash$        | +               | +       | +         | +          | H.        |          | 103<br>104 | Н                      | +        | ╁┤                | $\dashv$  | +            | $\dashv \dashv$ | $\dashv$  |  |  |
|      |                 | 5        | П             | 1          | $\perp$     | T        |          |            | 4         |           |                            | 55        |                |                 | 1               | #       | 1         | 1          |           |          | 105        | П                      |          | $\square$         |           | 1            | $\Box$          |           |  |  |
| -    |                 | 7        | Н             | +          | +           | +        | +        | $\dashv$   | +         | $\dashv$  |                            | 56<br>57  | +              | $\vdash$        | +               | +       | ╁         | +          | ₩.        |          | 106<br>107 | Н                      | +        | +                 |           | +            | $\dashv$        | $\dashv$  |  |  |
|      |                 | 8        |               |            | 1           | Ţ        |          |            | $\perp$   | ゴ         |                            | 58        |                |                 | 丰               | #       | 丰         |            |           |          | 108        |                        |          | $\Box$            |           | $\downarrow$ |                 |           |  |  |
| -    | _               | 9        | Н             | $\dashv$   | +           | ╁        | +        | $\dashv$   | +         | -         |                            | 59<br>60  | +              | $\vdash$        | +               | +       | +         | +          | H         |          | 109<br>110 | Н                      | +        | ╀                 | +         | +            | ++              | 4         |  |  |
| -    |                 | 11       | Ш             |            | 士           | 士        |          |            | 士         | ╛:        |                            | 61        | 士              |                 | 1               |         | 士         |            |           |          | 111        |                        |          |                   |           | $\perp$      |                 |           |  |  |
| _    |                 | 12<br>13 | Ш             |            | +           | +        | $\vdash$ |            |           | -  '      |                            | 62<br>63  | ╂              | $\vdash \vdash$ | $\downarrow$    | +       | +         | -          | Щ         | ļ        | 112<br>113 | -                      | _        | 1-1               | -         | +            |                 |           |  |  |
|      |                 | 14       |               |            | $\pm$       |          |          |            |           | ╛.        |                            | 64        | 上              |                 | $\dagger$       | t       | 1         |            | $\Box$    |          | 114        |                        |          |                   |           |              |                 | $\exists$ |  |  |
| -    |                 | 15<br>16 | V             | 4          | +           | $\vdash$ | Н        |            | $\dashv$  | ]         |                            | 65<br>66  | +              |                 | 4               | $\perp$ |           | _          |           |          | 115<br>116 |                        |          | $\square$         | 4         | -            | $\dashv$        | _         |  |  |
| <br> |                 | 17       | Н             | $\dashv$   | +           | +        | H        | $\exists$  | $\dashv$  | ┨.        |                            | 67        | +              | H               | +               | +       | ╁         |            |           | -        | 117        |                        | +        | $\vdash$          | +         | ┰            | +               | $\dashv$  |  |  |
|      |                 | 18       |               |            | $\perp$     | F        |          |            |           | 7         |                            | 68        | 1              | П               | 1               | 1       | 1         |            |           |          | 118        | П                      | $\perp$  | П                 | $\Box$    | 4            | $\blacksquare$  | $\Box$    |  |  |
| -    |                 | 19<br>20 | Н             | +          | +           | +        | +        | $\vdash$   | $\dashv$  | $\dashv$  |                            | 69<br>70  | +              | $\vdash$        | +               | +       | +         | +          | H.        | <b> </b> | 119<br>120 | Н                      | +        | ╁┤                | $\dashv$  | +            |                 |           |  |  |
|      |                 | 21       |               |            |             | 1        |          |            | $\Box$    | ╡.        |                            | 71        |                |                 | 1               | 1       | ļ         |            |           |          | 121        |                        |          | П                 | $\Box$    | 1            | $\Box$          | $\exists$ |  |  |
| -    |                 | 22<br>23 | $\vdash$      |            |             | ╁        | $\vdash$ |            | +         | $\dashv$  |                            | 72<br>73  | +              | H               | +               | +       | +         |            | H         |          | 122<br>123 |                        |          | ╁┼                | $\dashv$  | +            | ++              | $\dashv$  |  |  |
|      |                 | 24       |               | _          |             | Ţ        |          |            |           |           |                            | 74        | ፗ              |                 |                 | 1       | 1         | 工          |           |          | 124        |                        |          |                   |           |              |                 | 1         |  |  |
|      |                 | 25<br>26 | $\vdash$      |            | +           | +        | $\Box$   |            | $\dashv$  | -         |                            | 75<br>76  | +              | Н               | +               | +       | +         | +          | H         |          | 125<br>126 | $\vdash$               | -        | ┦┤                |           | -            | $\dashv$        | $\dashv$  |  |  |
|      |                 | 27       |               |            |             | 上        |          |            |           |           |                            | 77        |                |                 |                 |         | 1         | 土          | Ħ.        |          | 127        |                        |          |                   |           | $\perp$      |                 | $\exists$ |  |  |
| · ·  |                 | 28<br>29 |               | +          | +           | +        |          |            | +         | 4         |                            | 78<br>79  | ╁              | $\vdash \vdash$ | +               | +       | +         |            | <u> </u>  |          | 128<br>129 | Н                      | _        | $\vdash$          | 4         | 4            | +               | 4         |  |  |
|      |                 | 30       |               |            |             | 士        |          |            |           | ╛         |                            | 80        | $\perp$        |                 | $\pm$           | $\pm$   | $\pm$     | +          | Н         |          | 130        |                        |          |                   |           |              |                 |           |  |  |
| -    |                 | 31<br>32 | Н             | $\dashv$   | 4           | -        | -        |            | _         | 4         |                            | 81<br>82  | _              | Н               | 4               | $\perp$ | 4         | 1          | <u> </u>  |          | 131<br>132 | Ц                      | 4        | $\sqcup$          | _         | 4            | +               | _         |  |  |
| -    |                 | 33       | $\vdash$      | $\dashv$   | +           | +        | 1        | $\vdash$   | +         | $\dashv$  |                            | 83        | +              | H               | $\dashv$        | +       | +         | ╁          | H.        |          | 133        | Н                      | +        | $\vdash$          | $\dashv$  | +            | ++              | $\dashv$  |  |  |
|      |                 | 34       |               |            | 1           | L        |          |            |           | 7         |                            | 84        | $\blacksquare$ | П               | 4               | Ţ       | Ţ         | $\perp$    |           |          | 134        |                        |          | $\square$         |           |              | $\Box$          |           |  |  |
| -    |                 | 35<br>36 | Н             | +          | ╁           | +        | $\vdash$ | $\dashv$   | +         | $\dashv$  |                            | 85<br>86  | ╁              | H               | -               | +       | ╁         | +-         | H         |          | 135<br>136 | Н                      | +        | ╁┤                |           | +            |                 | _         |  |  |
|      |                 | 37       |               | _          | 丰           | Ţ        |          |            |           |           |                            | 87        |                |                 |                 | #       | $\bot$    |            |           |          | 137        |                        |          |                   |           |              |                 |           |  |  |
| -    |                 | 38<br>39 | Н             | +          | +           | +        | $\vdash$ |            | -+        | -         | <del> </del>               | 88<br>89  | ╁              | $\vdash$        | +               | +       | +         | +          | Н.        |          | 138<br>139 | $\left  \cdot \right $ |          | $\vdash$          | +         | +            | $\dashv$        | _         |  |  |
|      |                 | 40       |               |            |             | 上        | Ш        |            |           | ゴ         |                            | 90        |                |                 |                 | 土       | #         |            |           |          | 140        |                        |          |                   |           |              |                 |           |  |  |
| -    |                 | 41<br>42 | $\vdash \mid$ | $\dashv$   | +           | $\vdash$ | $\dashv$ | dash       | +         | -         | <u> </u>                   | 91<br>92  | +              | $oxed{\Box}$    | $\perp$         | $\perp$ | $\perp$   | -          | H.        |          | 141<br>142 | $\vdash \downarrow$    | -        | +                 | $\dashv$  | 1            | +               | _         |  |  |
|      |                 | 43       | Ц             | 士          | 士           |          |          |            | 士         | $\exists$ |                            | 93        | $\perp$        | H               | 士               | $\pm$   | 士         | $\pm$      |           |          | 143        | Ħ                      | 士        | 目                 |           | 士            | $\pm \pm$       |           |  |  |
| F    |                 | 44<br>45 | dash          | $\perp$    | +           | +        | igspace  | $oxed{-1}$ |           | $\dashv$  | <u> </u>                   | 94<br>95  | ļ              | $\prod$         | [               | -       | Ŧ         | Τ_         | Ц         |          | 144<br>145 | H                      | $\bot$   | $\Box$            | I         | Ŧ            | $\Box$          | $\exists$ |  |  |
| F    |                 | 46       |               | $\pm$      | 士           | $\pm$    |          |            | $\exists$ | $\exists$ |                            | 96        | _              |                 | $\dashv$        | +       | $\pm$     | 士          |           |          | 146        | H                      | _        |                   |           | +            | ╅┪              | $\dashv$  |  |  |
| F    |                 | 47<br>48 |               | Ŧ          | Ŧ           | F        | $\Box$   |            | $\dashv$  | _         |                            | 97<br>98  |                | П               | $\dashv$        | Ţ       | Ţ         | $\bot$     |           |          | 147<br>148 |                        | Ŧ        | П                 | $\exists$ | $\bot$       | $\Box$          | $\Box$    |  |  |
|      | _               | 49       |               | _          | $\pm$       | 1        | H        | H          | $\dagger$ | $\exists$ |                            | 99        | +              | $\vdash \vdash$ | $\dashv$        | ╁       | +         | +          | $\square$ | -        | 149        | $\vdash \vdash$        | +        | $\forall \exists$ | $\dashv$  | +            | +               | $\dashv$  |  |  |
|      |                 | 50       |               |            |             | Γ        |          |            |           |           |                            | 100       |                |                 |                 | 工       | I         |            |           |          | 150        |                        | 工        |                   |           | 土            |                 |           |  |  |